



REMARKS

Claims 1-20 have been canceled. New claims 21-40 have been added. No new matter has been added. Claims 21-40 are currently pending in the present application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

NEW CLAIMS 21-40

New claims 21-40 have been added to define aspects of the invention more clearly, particularly and distinctly. Support for the new claims can be found on pages 8-16 of the specification. No new matter has been added.

REJECTION OF THE CLAIMS UNDER 35 U.S.C. 112

Claims 1-6, 9-15 and 16-20 are rejected under 35 U.S.C. 112, second paragraph for the reasons set forth on pages 2 & 3 of the Action.

The rejections under 35 U.S.C. 112 are respectfully traversed, at least insofar as applied to the new and amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

The rejection of cancelled claim 1-8, 9-15 have been addressed in new claims 21-35.

Regarding claims 16-20, new claims 36 now recites the step of "providing a first set of drive waveform parameters for a first laser" and also clarifies that the controller and storage are integrated with the laser driver.

It is respectfully submitted that one of ordinary skill in the pertinent art, when reading the new claims in light of the supporting specification, would be able to ascertain with a reasonable degree of precision and particularity the particular area set out and circumscribed by the claims. Accordingly, it is submitted that the new claims fully comply with the requirements of 35 U.S.C. 112, second paragraph.

REJECTION OF CLAIMS 1-6 and 8 UNDER 35 U.S.C. 102

Claims 1-6 and 8 are rejected under 35 U.S.C. 102 for the reasons set forth on pages 4 of the Action. Specifically, claims 1-6 and 8 are rejected under 35 U.S.C. 102 as being anticipated by Olsen (US Pat. No. 5,623,355, hereinafter the Olsen reference).

The rejections under 35 U.S.C. 102 are respectfully traversed, at least insofar as applied to the new and amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

Page 4 of the Action cites Column 3, lines 33-40, Column 6, lines 8-18 and elements 18 and 54 of FIG. 2 of the Olsen reference for teaching the transmitter as claimed. It is respectfully submitted that the Olsen reference fails to teach or suggest all the limitations as claimed in new claims 21 to 28.

Specifically, the Olsen reference fails to teach or suggest, inter alia, the following claim limitation: “wherein the drive waveform parameters can include at least one parameter for affecting the negative peak portion of the drive waveform,” as claimed in claim 21. Support for this limitation may be found on page 10 lines 3 to 12. No new matter has been added. It is noted that negative peaking can be employed

advantageously to decrease the optical fall time during a one to zero transition. See Specification, page 10, lines 9-10.

It is respectfully submitted that Olsen, whether alone or in combination with Shastri and Diaz, fails to teach or suggest a drive waveform parameter to affect a negative peak portion of the drive waveform, as claimed.

Dependent claims 22 to 28 incorporate all the limitations of independent claim 21. In this regard, the dependent claims also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

In view of the foregoing, it is respectfully submitted that the Olsen reference fails to teach or suggest the optical transmitter as claimed.

REJECTION OF CLAIMS 9-11, 13, 14, 16-20 UNDER 35 U.S.C. 103(a)

Claims 9-11, 13, 14, 16-20 are rejected under 35 U.S.C. 103(a) for the reasons on pages 4-5. Specifically, claims 9-11, 13, 14, 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shastri et al. (US Pat. No. 5,844,928, hereinafter the Shastri reference) in view of Diaz et al. (US 2000/0064193, hereinafter the Diaz reference).

The rejections under 35 U.S.C. 103 are respectfully traversed, at least insofar as applied to the new and amended claims, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth hereinbelow.

The Action cites FIG. 2 (elements 20 and 36), and Columns 2 & 3 for teaching the adjustment of drive current to compensate for aging and temperature fluctuations. It is noted that Shastri et al. does not disclose the system as an open system. Paragraphs

0043 and 0049 of Diaz are cited for teaching that a laser system may be used as feedback or an open loop drive system.

Laser Driver Claims

It is respectfully submitted that the Shastri reference, whether alone or in combination with Diaz, fails to teach or suggest, inter alia, the following claim limitation: “wherein the waveform includes ac characteristics; and wherein the drive waveform parameters includes at least one parameter for affecting the ac characteristics of the drive waveform,” as claimed.

These ac characteristic can include, for example, a negative peak portion of the drive waveform. As stated in the specification on page 10 and illustrated in FIG. 7:

“One feature of the laser driver of the present invention is the programmability of the ac characteristics, such as negative peaking depth and duration, of the VCSEL drive waveform. Negative peaking refers to peaking of the VCSEL drive waveform during the logic one to logic zero falling transition. I_{pkd} is the negative peaking depth. T_{pkw} is the negative peaking duration.

The laser driver 100 can digitally program a negative peaking depth on the VCSEL drive waveform for use during an optical one to zero transition. The negative peaking is used to decrease the optical fall time during a one to zero transition. Also, the laser driver 100 can digitally program a negative peaking duration on the VCSEL drive waveform for use during an optical one to zero transition.”

Dependent claims 30-35 incorporate all the limitations of the independent claim 29. In this regard, the dependent claims also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

New Method Claims 36-40

Regarding independent claim 36, it is respectfully submitted that Shastri, whether alone or in combination with Diaz, does not fairly teach or suggest a method for providing a drive waveform, as claimed. For example, Shastri, whether alone or in combination with Diaz, does not fairly teach or suggest, inter alia, the steps of

providing a first set of drive waveform parameters for a first laser; and
generating a drive waveform for driving the first laser based on the first set of waveform parameters;

adjusting the first set of drive waveform parameters during the operation of the laser driver based on one of a temperature factor and an aging factor; and

generating an updated drive waveform for driving the first laser based on the adjusted drive waveform parameters;

wherein the drive waveform parameters can include a parameter for affecting the ac characteristics of the drive waveform,” as claimed.

Dependent claims 37-40 incorporate all the limitations of independent claim 36. In this regard, the dependent claims 37-40 also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited references.

For example, regarding claim 39, it is respectfully submitted that Shastri, whether alone or in combination with Diaz, does not fairly teach or suggest “wherein providing a first set of drive waveform parameters for a first laser includes one of:

digital programming of a bias current parameter;

digital programming of a modulation current parameter;

digital programming of a negative peaking depth parameter during an optical one to optical zero transition; and

digital programming of a negative peaking duration parameter during an optical one to optical zero transition,” as claimed. In fact, there does not appear to be any teaching in the cited references of the digital programming of a negative peaking depth or a negative peaking duration, as claimed.

Similarly, regarding claim 40, it is respectfully submitted that Shastri, whether alone or in combination with Diaz, does not fairly teach or suggest, “wherein adjusting the drive waveform parameters during the operation of the laser driver based on one of a temperature factor and an aging factor includes one of:

digital programming of an updated bias current parameter;

digital programming of an updated modulation current parameter;

digital programming of an updated negative peaking depth parameter during an optical one to optical zero transition; and digital programming of an updated negative peaking duration parameter during an optical one to optical zero transition,” as claimed.

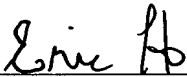
In fact, there does not appear to be any teaching in the cited references of the digital

programming of an updated negative peaking depth or an updated negative peaking duration, as claimed.

In view of the foregoing, it is respectfully submitted that the Shastri reference, whether alone or in combination with the Diaz reference, fails to teach or suggest the transmitter, driver and method for providing a drive waveform, as claimed.

In view of the foregoing, it is respectfully submitted that all pending claims of the present invention are now in condition for allowance. Reexamination and reconsideration of the pending claims are requested, and allowance at an early date solicited. The Examiner is invited to telephone the undersigned if the Examiner has any suggestions, thoughts or comments, which might expedite the prosecution of this case.

Respectfully submitted,



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Dated: February 6, 2003

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231 on the date below.



Eric Ho (RN 39,711)

February 6, 2003
(Date)